Chapter 9: Transformational Geometry

SECTION 5: SYMMETRY

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I Can

❑ Identify and describe symmetry in geometric figures

Symmetry

A figure has **symmetry** if there is a transformation where the image matches up with the preimage.
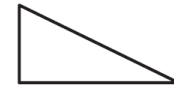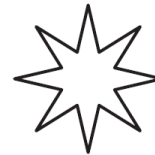
Line Symmetry

A figure has line symmetry (or reflection symmetry) if it can be reflected across a line so that the image coincides with the preimage. The line of symmetry (also called the axis of symmetry) divides the figure into two congruent halves.

Symmetry

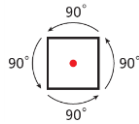**Tell whether the figure has line symmetry. If so draw all lines of symmetry.**

Symmetry

Rotational Symmetry

A figure has rotational symmetry (or *radial symmetry*) if it can be rotated about a point by an angle greater than 0° and less than 360° so that the image coincides with the preimage.

The *angle of rotational symmetry* is the smallest angle through which a figure can be rotated to match up.

The number of times the figure matches up through 360° is called the *order* of the rotational symmetry.

Angle of rotational symmetry: 90°
Order: 4

Symmetry

Tell whether each figure has rotational symmetry. If so, give the angle of rotational symmetry and the order of the symmetry.
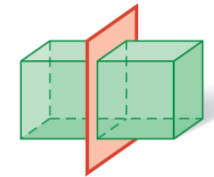
Symmetry

Describe the symmetry of each icon. Draw any lines of symmetry. If there is rotational symmetry, give the angle and order.
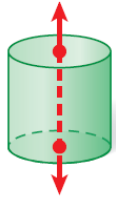
Symmetry

A three-dimensional figure has *plane symmetry* if a plane can divide the figure into two congruent reflected halves.
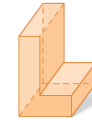
Plane symmetry

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Symmetry

A three-dimensional figure has *symmetry about an axis* if there is a line about which the figure can be rotated (by an angle greater than 0° and less than 360°) so that the image coincides with the preimage.

Symmetry about an axis

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❑ Identify and describe symmetry in geometric figures

Symmetry

Tell whether the figure has plane symmetry, symmetry about an axis, or neither.